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KEYS TO THE BRITISH GENERA AND SPECIES OF ELACHERTINAE, EULOPHINAE, ENTEDONTINAE, AND EUDERINAE (HYM., CHALCIDOIDEA)

By M. W. R. DE V. GRAHAM
(Hope Department of Entomology, University Museum, Oxford)

Introduction

The British Eulophidae have not been revised since the time of Francis Walker, whose main work on the group, contained in volume 1 of his "Monographia Chalciditum," appeared in early January, 1839. This is completely out of date as regards generic arrangement, moreover it is usually impossible to identify Walker's species from his descriptions alone. Amongst the literature dealing with the Eulophidae of European countries other than Britain, the work of Nees ab Esenbeck (1834) is hardly more satisfactory than that of Walker, and the types of most of his species no longer exist. The work of Ratzeburg (1844, 1848, 1852) suffers from the same disadvantages. His collection was destroyed in 1945, and many of his types had not previously been revised in the light of recent taxonomic advances. Usually he gives host-records for his species, from which it is doubtless often possible to recognize them; but our increasing knowledge of the varied host-relations of some species indicates that this method of identification must be regarded with some caution. A number of the species-names proposed by the two latter authors have been used subsequently, but later workers have often diverged considerably in their application of some of the names. This is not surprising since the types cannot be studied, so that interpretation of the species must often be a matter of opinion. Förster (1841, 1856, 1878) described a number of genera and species, but few of his types have been studied in recent years. The masterly work of Thomson, volume 5 of whose "Hymenoptera Scandinaviae" (1878) includes descriptions of the Swedish Eulophidae, is still the finest available; but besides being difficult to obtain, it does not include a number of British species, and moreover Thomson did not interpret correctly some of the older species-names which he mentions.

More recently Ferrière has made valuable contributions to our knowledge of the Eulophidae, but has not dealt particularly with British species. During the past fifteen years or so, Erdös has described many new species from Central Europe, and revised some of the genera. A number of his new species

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have not so far been found in Britain, while few of the others appear to be synonymous with British species described earlier by Walker. Delucchi (1954, 1957) has described some new genera of Entedontinae, and published keys to the species of these and of *Chrysocharis*, in which he has made excellent use of new characters. However, his keys do not include some British species, and sometimes he uses colour-characters which do not work well for our fauna.

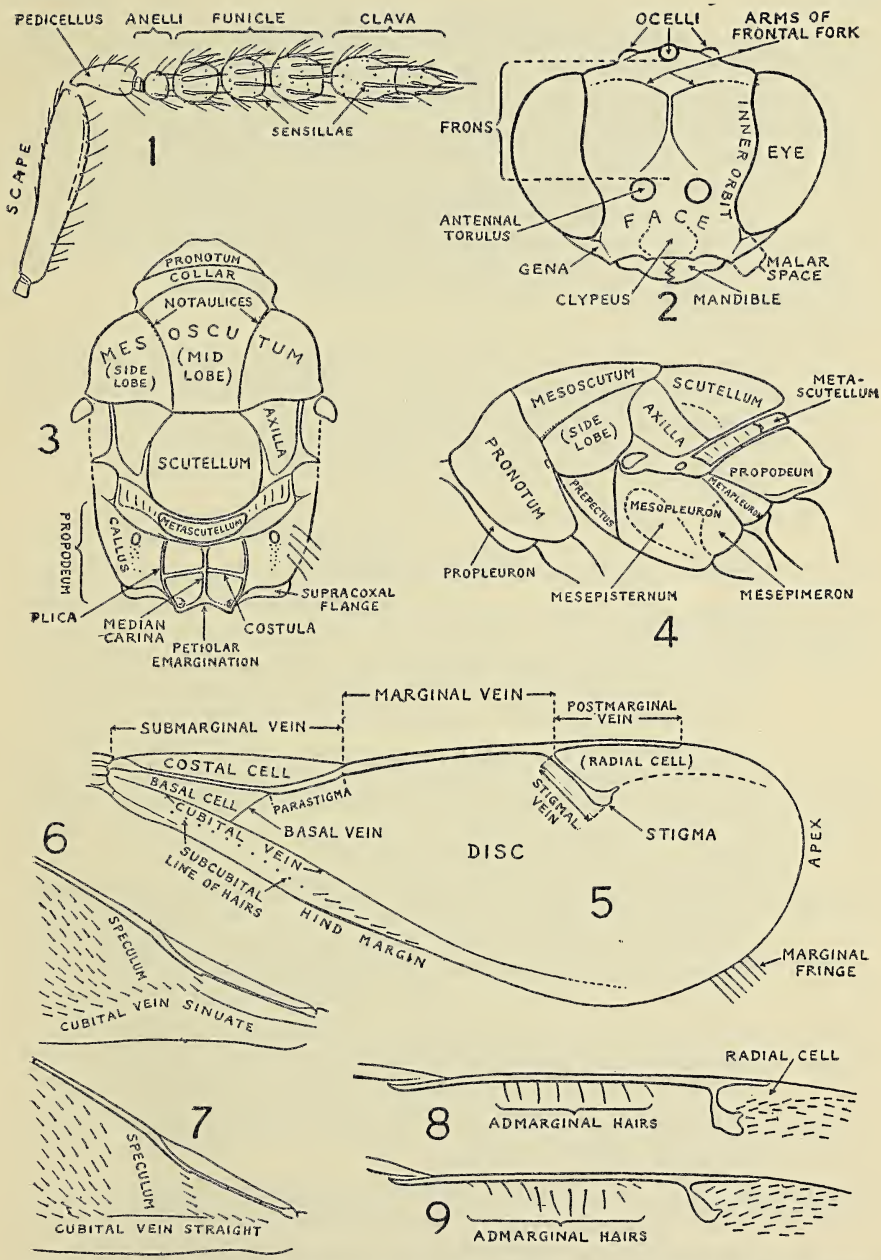
Clearly a revision of British Eulophidae must be based mainly upon the work of Walker, whose types have the advantage of being available to us in the British Museum (Nat. Hist.). Having been privileged to examine most of these, besides the types of species in the collections of Haliday, Greville, Westwood, Förster, Dalman, Zetterstedt, and Thomson, I feel that a contribution to our knowledge of this very interesting family may help others who, I hope, will carry the work farther than I am able to do. My aim is to use names which can be objectively defined by reference to an existing type specimen, so that my conclusions can be checked by other workers. Within the subfamilies dealt with here, almost all the Walker names in the Check List of Kloet and Hincks (1945) which are valid have been cited; most of the others will be synonyms (a few being possibly valid but at present omitted owing to the poor state of their types). Where Walker had a mixed series under one name, I have labelled as type that specimen which appears best to fit his description.

In deciding the limits of species, I have made use of much swept material taken in Britain by myself and others, as well as reared series where available. In many cases I have also examined material from the Continent, in order to form a more reliable concept of variation in the species.

The present paper is not an exhaustive revision, but it does cover almost all the species now on our list, and certainly all those reasonably likely to be found by a collector during a few seasons' hard work.

Terminology: This is explained in figs. 1-9. The term gaster is used for convenience to denote the main portion of the abdomen, i.e. that lying behind the petiole. Emphasis is placed upon structural characters as being in most cases more reliable than those of colour. The species in some genera are not easy to identify, though not I think any more so than in some other groups of insects. I feel that the amateur wishing to explore new fields should not be deterred by the expectation of insuperable difficulties in this group. I regret that space will not allow more figures, but I have tried to make points as clear as possible with the aid of a few.

My sincere thanks for help and facilities are especially due to the following: Dr. M. Beier, Naturhistorisches Museum, Vienna; Prof. L. Brundin and Dr. R. Malaise, Naturhistoriska Riksmuseum, Stockholm; Dr. W. D. Hincks, The University, Manchester; Mr. G. J. Kerrich, British Museum (Natural History); Prof. C. H. Lindroth, Universitetets Zoologiska Institution, Lund; Mr. R. Waterston, Royal Scottish Museum, Edinburgh; the Director and staff of the National Museum of Ireland, Dublin.



Figs. 1-9. 1, Antenna of *Derostenus amyclas* (Walk.), ♂. 2, Head of *Chrysocharis melaenis* (Walk.), ♀. 3, Diagram of Eulophid thorax, dorsal. 4, The same, lateral view. 5, Diagram of forewing. 6, Diagram of forewing (proximal part), showing speculum closed, basal cell open, below. 7, The same, but with speculum open below, basal cell closed. 8, *Omphale salicis* Hal., ♀, part of forewing. 9, *O. aetius* (Walk.), the same

Key to subfamilies of Eulophidae

1 (2) Tarsi 5-segmented.....Tetracampinae (part)

2 (1) Tarsi 4-segmented.

3 (4) Antenna: flagellum 10-segmented (1 anellus, 6 large funicle segments, and a 3-segmented clava).....Tetracampinae (part)

4 (3) Antenna: flagellum usually with 9 or fewer segments, sometimes 10, but with at most 5 large funicle segments; if as many as 5, then the clava has only 2 segments. (Number of anelli varying from 1 to 3, often minute; claval segments varying from 1 to 3.)

5 (12) Brachypterous.

6 (9) Males.

7 (8) Eyes absent or nearly so. Trochanter and femur of mid leg with long shaggy hairs beneath.....Tetrastichinae (*Melittobia*)

8 (7) Eyes normal. Trochanter and femur of mid leg without such hairs ..... Tetrastichinae (some *Aprostocetus*)

9 (6) Females.

10 (11) Antenna: funicle 4-, clava 2-segmented. Notaulices incomplete.... .....Eulophinae (some *Hemiptarsenus*)

11 (10) Antenna: funicle and clava both 3-segmented. Notaulices complete ..... Tetrastichinae (some *Aprostocetus*)

12 (5) Macropterous.

13 (14) Distal part of forewing with some of the hairs arranged in [5 or 6] lines, 3 of which radiate from the stigma; submarginal vein with 3 or more dorsal bristles. Scutellum with 4 (rather weak) bristles.. ..... Euderinae (*Euderus*)

14 (13) Either distal part of forewing has no such lines of hairs or, if some of the hairs are arranged in 1 or 2 lines proceeding from the stigma (some Entedontinae), then the submarginal vein has only 2 dorsal bristles and the scutellum has 2 bristles.

15 (16) Forewing: submarginal vein not broken before it reaches the marginal vein (see figs. 5-7), and provided with 3 or more dorsal bristles; postmarginal vein developed, at least about as long as stigmal, often longer. Scutellum with 4 bristles (an anterior and a posterior pair). .....Elachertinae and Eulophinae

16 (15) Forewing: either submarginal vein with a distinct break or dislocation just above the basal vein (figs. 8, 9, 21, 26), or, if this is not distinct (a very few Tetrastichinae) then the postmarginal vein is shorter than the stigmal or rudimentary; the submarginal vein has a varying number of dorsal bristles (sometimes only 2 or 1). Scutellum with 2 or 4 bristles.

17 (18) Forewing: submarginal vein with 2 dorsal bristles. Scutellum with 2 bristles near the middle; nearly always without submedian grooved lines. Mid lobe of mesoscutum nearly always with 4 bristles (an anterior and a posterior pair) which are not close to the notaulices (which are often incomplete). (Forewing: postmarginal vein varying, often as long or longer than the stigmal, but sometimes very short or rudimentary)..... Entedontinae

18 (17) Forewing: submarginal vein with 1, 2, or more dorsal bristles, if with 2, then the scutellum has 4 bristles (as in all the members of this section). Mid lobe of mesoscutum with from 2 to several bristles, when few these tend to be situated laterally close to the (complete) notaulices. (Forewing: postmarginal vein absent, or shorter than the stigmal (except *Astichus*); scutellum nearly always with a pair of submedian longitudinal grooved lines.)

19 (20) Forewing: postmarginal vein about as long as the stigmal; submarginal with 4 or more dorsal bristles. Scutellum without submedian longitudinal grooved lines. Scapulae not deeply excised posteriorly ..... Euderinae (*Astichus*)

20 (19) Forewing: postmarginal vein absent or rudimentary (in female *Melittobia* sometimes present but shorter than the stigmal); submarginal vein with 1, 2, or more dorsal bristles. Scutellum nearly always with a pair of submedian longitudinal grooved lines. Hind margin of scapulae deeply, angularly excised..... Tetrastichinae

Tetracampinae

We have three or four genera, and about half a dozen species of this subfamily. As some matters of identification and synonymy need revision, I am not providing tables for this group at present.

Key to Genera of Elachertinae and Eulophinae

1 (2) The longer of the two hind tibial spurs half the length of the hind tarsus ..... *Euplectrus*

2 (1) The spur or spurs of the hind tibia much shorter than above.

3 (12) Mesoscutum: notaulices complete and deep throughout (Elachertinae).

4 (11) Forewing: stigma small, not oblong. Antenna: funicle with either 4 or 2 segments in both sexes.

5 (10) Antenna: funicle with 4 segments.

6 (9) Scutellum with a pair of sublateral grooved lines which curve round and join posteriorly.

7 (8) Thorax marked with reddish or yellow. Occiput margined throughout..... *Stenomesius*

8 (7) Thorax wholly black or metallic. Occiput rounded, or sometimes slightly ridged in the middle only..... *Elachertus*

9 (6) Scutellum without grooved lines (or rarely a trace of them anteriorly) ..... *Miotropis*

10 (5) Antenna: funicle with 2 segments..... *Cirrospilus*

11 (4) Forewing: stigma larger, oblong. Antenna: funicle with 3 segments in female, 4 in male..... *Olynx*

12 (3) Mesoscutum: notaulices present in front only or, if complete (*Teleogmus*, some *Diglyphus*) then weak and superficial posteriorly.

13 (16) Antenna: female funicle 2-, clava 3-segmented; male funicle with 2 or 3, clava with 3 or 2, segments, the funicle without branches.

14 (15) Scutellum with a pair of sublateral longitudinal grooved lines. Antenna: funicle 2-segmented ..... *Diglyphus*

15 (14) Scutellum without such lines. Antenna: funicle of female 2-, of male 3-segmented ..... *Colpoclypeus*

16 (13) Antenna: female funicle 3- or 4-segmented; male funicle 4- or 5-segmented, often with branches.

17 (32) Antennae inserted near or at level of lower edge of eyes; scape at most reaching the vertex. Forewing: costal cell broader, rarely *Dahlbominus*) very narrow. Macropterous.

18 (19) Scutellum with a pair of sublateral longitudinal grooved lines. Male: antennal funicle with 2 branches..... *Dicladocerus*

19 (18) Scutellum without such lines. Male: antennal funicle with 3 branches; or unbranched (some *Sympiesis* and *Comedo*).

20 (21) Anterior margin of clypeus incised medially..... cf. *Sympiesis*

21 (20) Anterior margin of clypeus entire.

22 (23) Propodeum: median carina complete, plicae complete, nearly always angulate outwards in the middle and often forming at tooth at that point; costula usually present (sometimes absent in males and very small females). Mid lobe of mesoscutum (at least the front half) with numerous irregularly-placed conspicuous bristles. Face and genae mainly or partly smooth and shiny. (Antenna: female funicle 4-, clava 2-segmented; male funicle with 3 branches).... ..... *Pnigalio*

23 (22) Propodeum: carina present or absent; plicae absent, present only posteriorly or, if nearly complete, not angulate; costula absent. mid lobe of mesoscutum with 3 to 5 pairs of bristles in two longitudinal series (usually a few weak extra ones anteriorly in *Sympiesis acalle*). Face and genae mainly reticulate, duller.

24 (25) Mesoscutum: notaulices complete though fine and superficial posteriorly ..... *Teleogmus*

25 (24) Mesoscutum: notaulices indicated in front only.

26 (27) Forewing: postmarginal vein at least twice as long as stigmal. Antenna: female funicle 4-, clava 2-segmented..... *Sympiesis*

27 (26) Forewing: postmarginal vein at most about 1·5 times as long as stigmal. Antenna: female funicle 3-, clava 3-segmented (except in *Dahlbominus*, in which they have 4 and 2 segments respectively).

28 (29) At least the tarsi of the mid leg with their first segment shorter than the second; spur of mid tibia as long as outer side of first tarsal segment. (Male: antennal funicle with 3, or without, branches).. ..... *Comedo*

29 (28) Mid leg: first tarsal segment longer than second. Hind leg: first segment equal to or longer than second. Spur of mid tibia much shorter than first tarsal segment.

30 (31) Female: antennal funicle 3-, clava 3-segmented. Male: funicle with 3 long branches..... *Necremnus*

31 (30) Female: funicle 4-, clava 2-segmented. Male: funicle with 3 shorter branches..... *Dahlbominus*

32 (17) Antennae inserted near middle of face; scape reaching well above vertex. Forewing: costal cell extremely narrow (female sometimes brachypterous)..... *Hemiptarsenus*

Elachertinae

Genus *Euplectrus* Westwood, 1832

Only one species, *bicolor* (Swederus) is listed by Kloet and Hincks (1945). I believe that at least two other species occur in Britain, but as the diagnostic characters require detailed study, I postpone dealing with this question until a later date.

Genus *Stenomesius* Westwood, 1833

One British species, *rufescens* (Rossi), which is not uncommon.

Genus *Elachertus* Spinola, 1811

Key to Species

1 (4) Mid lobe of mesoscutum with 4 long bristles (an anterior and posterior pair); notaulices intercepting axillae almost at the inner angles of the latter; hind margin of mesoscutum nearly straight. (Petiole of gaster transverse, smooth; female antenna short, subclavate, the first funicle segment at most as long as the pedicellus, fourth transverse.)

2 (3) Scutellum (X50) either wholly smooth and shiny, or at most alutaceous proximally ..... *nigritulus* (Zett.) (=*aphaca* Walk.)

3 (2) Scutellum wholly reticulate ..... *olivaceus* (Thomson)

4 (1) Mid lobe of mesoscutum with 6 or more bristles, when numerous those in front tend to be shorter; notaulices intercepting axillae well outside the inner angles of the latter. Either the hind margin of the mesoscutum is strongly produced backwards between the notauli; or the petiole is not transverse; or the funicle segments are longer.

5 (8) Hind margin of mesoscutum (between the notaulices) strongly produced backwards; mid lobe of mesoscutum with about 6-10 bristles, more sparsely bristly than the side lobes.

6 (7) Scutellum wholly reticulate. Female: funicle segments shorter, fourth slightly transverse ..... *charondas* (Walker)

7 (6) Scutellum either wholly smooth and shiny, or weakly alutaceous anteriorly. Female: funicle segments longer, fourth not transverse ..... *florianus* (Walker)

8 (5) Hind margin of mesoscutum not strongly produced backwards; mid lobe of mesoscutum usually with more numerous bristles, often almost as thickly bristly as the side lobes.

9 (10) Scutellum either wholly smooth and shiny, or at most ± alutaceous in the anterior half. (Petiole transverse, smooth; head and thorax greenish)..... *isadas* (Walker)

10 (9) Scutellum wholly reticulate.

11 (12) Petiole of gaster transverse, smooth. Female: first funicle segment twice as long as broad and longer than the pedicellus, fourth slightly elongate..... *ticida* (Walker)

12 (11) Petiole at least as long as broad, its posterior expanded part finely cross-striate. Female: first funicle segment at most 1·6 times as long as broad, at most as long as the pedicellus, fourth quadrate to transverse.

13 (14) Legs paler testaceous: coxae, sometimes also femora, ± dark. Thorax blackish, sometimes slightly metallic. Gaster of female 1·6-2 times as long as broad, black or with a small sub-basal spot and venter along the median line, pale..... *argissa* (Walker)

14 (13) Legs (including almost always the coxae), blotch at base of gaster dorsally, and gaster ventrally ±, bright or reddish-testaceous. Thorax usually bright green to bronze. Gaster of female hardly longer than broad ..... *artaeus* (Walker)

Most of the species are not uncommon (except *olivaceus* and *charondas*, which are local, and *ticida*, which appears to be rare. *Elachertus isadas* (Walker) (**comb.n.**) was originally described (1839) as a *Eulophus*, as were his other species. *E. olivaceus* is new to Britain (Berks.).

Genus *Miotropis* Thomson, 1878

1 (2) Thorax: mesopleuron ±, and also at least metapleuron, reddish-yellow; often the body is richly marked with this colour (sometimes mainly so). Legs reddish or mainly so. Propodeum: median carina divided by a longitudinal groove..... ..... *unipuncta* (Nees) (=*articas* Walk.)

2 (1) Thorax, except mesopleuron above, black. Legs very dark. Propodeum: median carina divided only by a fine superficial line.... ..... *simplex* Thomson

I am not sure whether the above are distinct species, but prefer to keep them separate at present. *M. unipuncta* (Nees) (**comb.n.**) was originally described as a *Eulophus*. The species (or forms) are local.

Genus *Cirrospilus* Westwood, 1832

Key to Species

1 (2) Scutellum without grooved lines, or with the merest trace of them; anterior pair of bristles minute, much weaker than the posterior pair (*Cirrospilus* Westw. s.str.).....*elegantissimus* Westwood

2 (1) Scutellum with a pair of sublateral longitudinal grooved lines; all four scutellar bristles about equally strong (subg. *Atoposomoidea* Howard).

3 (4) Forewing: postmarginal vein about 1·5 times as long as the stigmal. All bristles of the mesoscutum blackish.....
..*setulosus* **nom.n.** (=*unipunctus* Thomson, 1878, nec Nees 1834)

4 (3) Forewing: postmarginal vein slightly shorter than or equal to the stigmal. Only the longer bristles of the mesoscutum dark.

5 (10) Forewing: disc less densely haired towards the speculum; cubital vein not sinuate upwards where it joins the basal vein (see fig. 7); basal cell triangular. (The cubital vein, and those delimiting the basal cell, if not marked by lines of hairs, may be seen as folds on the wing by oblique light.)

6 (7) Dark parts of body black or brown. Forewing: speculum very narrow. Propodeum: plicae absent. (First funicle segment as long as or longer than the pedicellus, second at least 1·5 times as long as broad) ..... *lyncus* Walker

7 (6) Dark parts of body at least slightly metallic. Either speculum is broader, or the propodeum has plicae.

8 (9) Propodeum: plicae present (except in very small specimens). Forewing: speculum narrow, closed below.....*diallus* Walker

9 (8) Propodeum: plicae absent. Forewing: speculum broader, usually open below in female.....*pictus* (Nees)

10 (5) Forewing: disc uniformly very densely haired; cubital vein strongly sinuate upwards where it joins the basal vein (see fig. 6); basal cell very narrow, almost parallel-sided in its distal half. (Antennae short; first funicle segment of female shorter than pedicellus, second subquadrate.)

11 (12) Thorax and gaster usually mainly yellow; dark (metallic) markings tending to form irregular longitudinal stripes (especially upon the thorax). Forewing: speculum very narrow.....*vittatus* Walker

12 (11) Thorax and gaster wholly metallic. Forewing: speculum absent....
.....*singa* Walker

C. elegantissimus, *setulosus* and *singa* appear to be rare; the other species are quite common. *C. setulosus* is new to our list (Westwood coll., probably Surrey).

Genus *Diglyphus* (Haliday MS.) Walker, 1848

Key to Species

1 (2) Forewing narrow, uniformly densely haired from basal vein to apex; basal cell open below or closed only distally; cubitus strongly sinuate upwards as in *Cirrospilus singa* (q.v.); veins thin, flavous; tibiae ± dark ..... *isaea* (Walker)

2 (1) Forewing broader, with a speculum or at least a narrow less densely haired strip just beyond basal vein; cubitus hardly sinuate or (*tibiscanus*) tibiae pale; veins fuscous, often thicker.

3 (4) Legs (except coxae and usually hind femur ±) and scape mainly pale yellow. Body green, shiny, scutellum purplish..... ..... *tibiscanus* Erdös

4 (3) Femora and tibiae mainly dark; scape metallic or (*poppoea*) ± whitish.

5 (6) Funicle segments at least 1·5 times as long as broad. Scutellum (fig. 10): grooves very wide apart. (Greenish-bronze, scutellum bronzy to dull purplish).....*minoeus* (Walker)

6 (5) Funicle segments not or hardly longer than broad. Scutellum: grooves closer together. (Mainly greenish, including scutellum.)

7 (8) Scape mainly, or at least proximal half, whitish. Scutellum distinctly broader than long.....*poppoea* Walker

8 (7) Scape metallic. Scutellum (fig. 11) as long as or slightly longer than broad ..... *chabrias* (Walker)

D. isaea and *chabrias* are common, the other species less so (*tibiscanus* apparently rare, new to Britain). Erdös (1951, 1958) has described other new species, which appear to be different from all those of Walker.

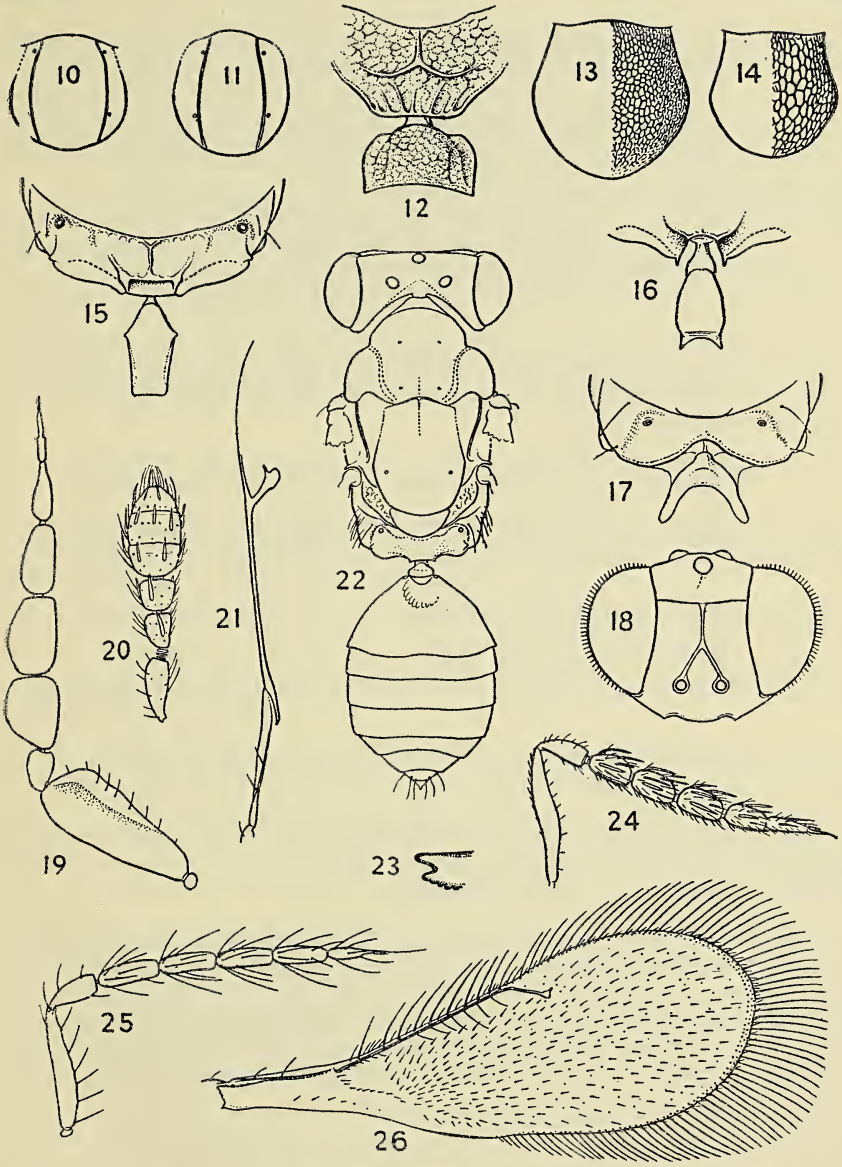
Genus *Colpoclypeus* Lucchese, 1940

One British species, *florus* (Walker), **comb.n.** (=*Eulophus florus* Walker, 1839); local, on willows.

Genus *Olynx* Förster, 1856

Key to Species

1 (2) Forewing: postmarginal vein about 1·5 times as long as stigmal; speculum closed below. Female: hind, and usually mid, tibia with pale hairs only; first funicle segment not or barely longer than pedicellus. Male: flagellum with strongly outstanding hairs..... ..... *arsames* (Walker) (=*lineaticeps* Mayr)



Figs. 10-26. 10, *Diglyphus minoeus* (Walk.), ♀, scutellum. 11, *D. chabrias* (Walk.), ♀, scutellum. 12, *Epilampsis assis* (Walk.), ♀, propodeum and petiole. 13, *E. nephereus* (Walk.), ♀, scutellum. 14, *E. pentheus* (Walk.), ♀, scutellum. 15, *E. prodice* (Walk.), ♀, propodeum and petiole. 16, *E. larina* (Walk.), ♀, part of propodeum, and petiole. 17, *Omphale salicis* Hal., ♀, propodeum and petiole. 18, *Enaysma atys* (Walk.), ♀, head. 19, *Desmatocharis turcica* (Nees), ♀, antenna. 20, *Neochrysocharis clinias* (Walk.) ,♀, antenna (minus scape). 21, *Ionympha ochus* (Walk.), ♀, forewing venation. 22, The same, ♀ body. 23, The same, mandible. 24, The same, ♀ antenna. 25, *Eugerium isander* (Walk.), ♀ antenna. 26, The same, forewing.

2 (1) Forewing: postmarginal vein not, or hardly, longer than stigmal; speculum open below (except *skianeuros*). Female: hind, and usually mid, tibia with about two rows of fine blackish bristles along their outer edge; first funicle segment much longer than pedicellus. Male: flagellum with slightly outstanding, or adpressed, hairs.

3 (4) Forewing, upper surface: speculum narrow, closed below by a line of hairs. Female: gaster at least twice as long as broad, slightly longer than thorax. Male: flagellum with slightly outstanding hairs..... ..... *skianeuros* (Ratzeburg)

4 (3) Forewing, upper surface: speculum broader, open below. Female, gaster less than twice (usually about 1·5 times) as long as broad, shorter than or at most as long as thorax. Male: flagellum with adpressed hairs.

[Males of the following species not distinguishable at present.]

5 (6) Female: mid tibia pale yellow with a blackish stripe along its inner edge; grooves connecting posterior ocelli with eyes usually dark.. ..... *pulchra* Mayr

6 (5) Female: mid tibia pale yellow to orange, immaculate; ocellar-ocular grooves yellow or partly so.

7 (8) Appears April-May. Mid and hind tibiae orange or orange-yellow ..... *euedoreschus* (Walker)

8 (7) Appears July-August. Tibiae pale (rarely chrome) yellow..... ..... *rotundiventris* Thomson

Relatively common (except *rotundiventris*). *O. arsames* was originally described (1838) as a *Cirrospilus*; *O. euedoreschus* (1839) as a *Eulophus*; the other species are new to Britain (Berks.).

Kloet and Hincks (1945) list only *O. gallarum* (Linnaeus), the type species of the genus. We have failed to locate the type material of *gallarum*. As the chief revisers of the genus, Mayr (1877) and Thomson (1878), differ in their interpretation of *gallarum*, and this name has been used by other authors for almost every species, it is best to leave the application of the name *sub judice* pending further evidence, meanwhile retaining the customary usage of the generic name.

Genus *Dicladocerus* Westwood, 1832 (=*Diglyphis* Thomson, 1878)

Besides *westwoodi* Westwood, 1832 (the type species), we possibly have other species. *Eulophus aepytus* and *E. battis* Walker, 1839; also *E. euryalus* Haliday, 1843, and *Diglyphis aeneiscapus* Thomson, 1878, belong to this genus. I find structural differences between some of these, but am uncertain how many species really exist. The problem needs careful study before the above names can be applied correctly.

Genus *Pnigalio* Schrank, 1802 (=*Eulophus* auctt. nec Geoffroy, 1762)

Key to Species

1 (2) Propodeum alutaceous, its median area strongly transverse, carina and plicae very fine. Forewing: marginal vein hardly 2·5 times as long as stigmal. (Body bronze- or blue-black, legs nearly wholly black; funicle segments in female short) ..... *attis* (Walker)

2 (1) Propodeum: median area smoother and shiny, not strongly transverse; carina and plicae strong. Forewing: marginal vein at least 3 times as long as stigmal.

3 (4) Propodeum: median carina elevated into a tooth basally; costula before the middle. Male: branches of funicle clothed with short stiff hairs..... *tischbeini* (Ratzeburg)

4 (3) Propodeum: median carina not toothed; costula usually in the middle. Male: branches of funicle with long fine hairs.

5 (6) Propodeum: costula before the middle (but sometimes weak). Female: fourth funicle segment subquadrate; basal tergite of gaster with hairs on lateral margins only..... ..... *longulus* (Zetterstedt) (=*pisidice* Walk.)

6 (5) Propodeum: costula in the middle. Female: fourth funicle segment longer than broad; hairs of basal tergite of gaster extending well on to the disc.

7 (8) Female: hind tibia wholly testaceous, or sometimes brownish distally, but then the two colours not sharply delimited; hind tarsi ± testaceous proximally and fuscous distally. Propodeum: 1 (sometimes 2 or 3) longish hairs just outside base of plica. Gaster 1·4-1·7 times as long as broad, usually shorter than thorax. Forewing: speculum very small or absent ..... *soemias* (Walker)

8 (7) Female: hind tibia ± testaceous proximally and blackish distally with the two colours sharply delimited (sometimes mainly to wholly black); hind tarsi with 2 or 3 proximal segments (rarely only 1 in dark forms) whitish. Propodeum: 1 weak hair outside base of plica. Either gaster is about twice as long as broad, or (*agraules*) forewing speculum is large and thorax is ± purplish-tinged.

9 (10) Female: gaster 1·5-1·8 times as long as broad, usually shorter than thorax. Posterior ocelli larger, slightly more than their own length from eyes. Thorax almost always ± purplish. Propodeum: median area usually transverse, at most as long as broad. Forewing: speculum large ..... *agraules* (Walker)

10 (9) Female: gaster 1·8-2·5 times as long as broad, as long as or longer than thorax. Posterior ocelli smaller, separated from eyes by about 1·5 times their own length. Thorax greenish, sometimes brassy or bluish. Propodeum: median area as long as or (usually) slightly longer than broad. Forewing: speculum moderate to narrow.

11 (12) Forewing hyaline or ± yellowish discally; speculum of moderate size, not effaced on upper surface of wing by scattered hairs. Metapleuron usually with some (1-5) hairs..... *coecilius* (Walker)

12 (11) Forewing usually infumate; speculum smaller, tending to be ± effaced on upper surface of wing by scattered hairs. Metapleuron bare ..... *lucumo* (Walker)

All the above species (except *attis*) are relatively common. Those of the *agraules*-group are difficult to separate, though I believe they are good species (except possibly *lucumo*). Critical rearing would be valuable. *P. agraules*, *coecilius* and *lucumo* together form the aggregate generally known as *pectinicornis* Linnaeus; but as the type of the latter is not in Linné's collection [it may be in that of Degeer] I cannot be sure of its identity. Walker's species were originally described (1839) in *Eulophus*. *P. tischbeini* (Oxfordshire) is new to our list.

Genus *Teleogmus* Förster, 1856

This genus is not really very distinct from *Sympiesis*.

Key to Species

1 (2) Metascutellum and propodeum more shiny (especially in male), almost smooth to delicately reticulate. Female: face often yellow-marked.....*xanthostomus* (Nees)

2 (1) These parts strongly punctate-reticulate and dull. Female: face immaculate.....cf. *Sympiesis* (*viridula* Thoms.)

I. xanthostomus appears to be local; *Eulophus leodamas* Walker, 1839, is the male.

Genus *Sympiesis* Förster, 1856

Key to Species

1 (2) Anterior margin of clypeus incised medially. Propodeum: plicae complete though fine (subgen. *Encopa* **nov.**; type *Eulophus brevicornis* Erdös, 1954) ..... *brevicornis* (Erdös)

2 (1) Anterior margin of clypeus entire. Propodeum: plicae present only posteriorly, at most about reaching half way to base.

3 (4) Forewing: postmarginal vein not longer than parastigma. Male: funicle 5-segmented, without branches; clava solid (*Sympiesis* s.str.) .....*sericeicornis* (Nees)

4 (3) Forewing: postmarginal vein much longer than parastigma. Male: funicle 4-segmented, with 3 branches; clava biarticulate (subgen. *Cladosympiesis*, **nov.**; type species *Eulophus gordius* Walker, 1839).

5 (6) Head and thorax mainly blue-black. Female: forewing with two fuscous bands. (Femora, and usually apices of mid and hind tibiae ± broadly, black) ..... *acalle* (Walker)

6 (5) At least thorax mainly green, golden-green or bluish-green. Female: forewing immaculate, or with one fuscous streak from the stigma.

7 (8) Metascutellum and propodeum delicately reticulate, often ± smooth and shiny (esp. in male); propodeum produced into a distinct neck, median carina distinct. Female: gaster narrow, slightly longer than head plus thorax; legs (except sometimes coxae ±) flavous..... ..... *gordius* (Walker) (=*stramineipes* Thoms.)

8 (7) Metascutellum and propodeum strongly reticulate (especially in female, where they are relatively dull); propodeum hardly produced in middle posteriorly, carina absent or (*viridula*) at most weak. Female: gaster broader, not longer than head plus thorax; femora (and in *sandanis* tibiae) often ± dark.

9 (10) Scutellum reticulate, with ± circular areoles. Forewing immaculate .....*viridula* (Thomson)

10 (9) Scutellum strigose-reticulate (the areoles oblong). Forewing of female usually with a fuscous streak from the stigma..... ..... *sandanis* (Walker)

Except *brevicornis* and *acalle*, which are rare, and *viridula*, which is local, the species are common. The Walker species were originally described (1839) in *Eulophus*. *S. brevicornis* [Bucks.] and *S. viridula* [Berks.] are new to Britain.

Genus *Comedo* Schrank, 1802
(=*Cratotechus* Thomson, 1878)

Key to Species

1 (2) Fourth tarsal segment large, about equal in length to segments 2—3. Male: funicle without branches, its first segment the longest, thence shortening; last gastral sternite with a pair of lateral spinose processes (subgen. *Onychocomedo* **nov.**; type *Eulophus thespius* Walker, 1839) ..... *thespius* (Walker)

2 (1) Fourth tarsal segment hardly longer than third. Male: funicle with 3 branches, its first segment shorter than the third; last gastral sternite unarmed (*Comedo* s.str.).

3 (4) Body bronze-black, dull. Coxae and femora mainly metallic..... ..... *pennicornis* (Nees) (=*drupes* Walk.)

4 (3) Body green, greenish, or bluish, more shiny. At least fore coxae, and all femora mainly, pale.

5 (6) Slender; head obviously broader than thorax. Scutellum gibbous. Coxae (except hind ones ± proximally) pale .... *abdominalis* (Nees) (=*anatole* Walk.)

6 (5) Stouter; head hardly broader than thorax. Scutellum feebly convex. Fore coxae alone pale. Gaster with a pale subbasal spot or fascia, or (f. *nigribasis* Gradwell) wholly metallic ....*larvarum* (Linnaeus)

C. abdominalis is apparently rare; *thespius* local; the other two species are common. My interpretation of Nees' species is based upon his types (supposedly destroyed, but which I have rediscovered).

Genus *Necremnus* Thomson, 1878

Key to Species

1 (8) Forewing: postmarginal vein about 1·5 times as long as stigmal.

2 (5) Female: combined length of pedicellus and flagellum about 1·4 times the breadth of the head; funicle segments longer, second twice, third more than 1·5 times, as long as broad. Forewing with 1 or 2 fuscous blotches.

3 (4) Female: gaster about 3 times as long as broad, much longer than head plus thorax. Forewing with 2 fuscous blotches..... ..... *artynes* (Walker)

4 (3) Female: gaster about twice as long as broad, not or hardly longer than head plus thorax. Forewing usually with one fuscous blotch at stigmal vein, rarely a second at base of marginal ..... *metalarus* (Walker)

5 (2) Female: combined length of pedicellus and flagellum equal to or barely greater than breadth of head; funicle segments shorter, second less than twice, third less than 1·5 times, as long as broad. Forewing immaculate.

6 (7) Female: body green or greenish. Male: branches of funicle stouter, with short stiff bristles..... *leucarthros* (Nees)

7 (6) Female: body bronze or greenish-bronze. Male: branches of funicle thin, with long hairs..... *tidius* (Walker)

8 (1) Forewing: postmarginal vein not or hardly longer than stigmal.

9 (10) Female: pedicellus plus flagellum about 1·4 times the breadth of the head; first funicle segment much longer than pedicellus, third 1·5-1·8 times as long as broad. Male unknown.... *croton* (Walker)

10 (9) Female: pedicellus plus flagellum not or barely greater than breadth of head; first funicle segment not or hardly longer than pedicellus, third not or only slightly longer than broad.

11 (12) Female: forewing hyaline or faintly uniformly infumate. Male: flagellar segments shorter, the fourth funicle and the clava at most about 2·5 times as long as broad; body mainly violet- or bronzy-black..... *folia* (Walker)

12 (11) Female: forewing nearly always with 2 fuscous blotches, sometimes joined, rarely absent. Male: flagellar segments longer, the fourth funicle and the clava at least 3 times as long as broad; body greenish..... *cosconius* (Walker)

N. croton is rare; *artynes* local (coastal areas); the others are common and (except *metalarus*) often occur on windows. All the Walker species were described (1839) in the genus *Eulophus*.

Genus *Dahlbominus* Hincks, 1945

One species, *fuscipennis* (Zetterstedt), 1838 (? native). An earlier name is [*Eulophus*] *fuliginosus* Nees, 1834; but as *fuscipennis* is well known, it may be desirable to retain this.

Genus *Hemiptarsenus* Westwood, 1833

1 (6) Propodeum without median carina or plicae. Female: antennal clava partly or wholly whitish; thorax often partly orange-yellow; forewings usually fuscous-marked.

2 (3) Female: gaster strongly alutaceous, almost wholly covered with whitish hairs; head with extremely fine, dense sculpture, matt; body violet-black, scutellum slightly greenish (male unknown).... ..... *waterhousei* Westwood

3 (2) Gaster weakly alutaceous, sparsely hairy (especially discally). Head with weaker sculpture, ± shiny. Thorax usually greenish, with or without orange-yellow markings.

4 (5) Female: second segment of antennal clava alone whitish; scutellum not longer than broad (macropterous or brachypterous, forewing disc slightly clouded) ..... *fulvicollis* Westwood

5 (4) Female: whole of antennal clava whitish; scutellum slightly longer than broad (macropterous, forewing with 2 or 3 transverse bands ± indicated..... *dropion* (Walker)

6 (1) Propodeum with median carina and plicae. Female: antennal clava blackish; thorax wholly metallic; wings immaculate..... ..... *unguicellus* (Zetterstedt)

The name *fulvicollis* has sometimes been misapplied; I should mention that Westwood's type is not in Oxford, but in the British Museum. *H. dropion* (Walker), 1839, was originally described as a *Eulophus*. *H. waterhousei* is rare; the other species common.

Entedontinae

Many of these are amongst the most beautiful of the Chalcidoidea; a large number are parasites of leaf-mining Lepidoptera, Agromyzidae, etc., and are not difficult to rear.

Key to Genera

1 (2) Vertex with a deep fovea behind the ocelli, the latter all connected by an impressed line; temples densely fuscous-haired. . *Derostenus*

2 (1) Vertex without such a fovea; ocelli not connected by a line; temples not densely haired.

3 (4) Scutellum with a median longitudinal grooved line; head mainly smooth; propodeum with plicae and sometimes a costula..... .....*Holcopelte*

4 (3) Scutellum without a median line, or rarely a short one anteriorly.

5 (6) Propodeum punctulate, with a large basal tongue-like projection (in profile like a tooth); plicae complete, nearly parallel. Pronotum without collar. Forewing: postmarginal and stigmal veins very short, subequal (wing in female with a fuscous blotch touching the stigma, and usually 1 or 2 smaller ones below it)..... *Mestochari*$_s$

6 (5) Propodeum without such a projection; if with a small tooth, then either the pronotum has a margined collar, or the postmarginal vein is much longer than the stigmal, or the plicae of the propodeum are absent or present only posteriorly.

7 (8) Propodeum with complete, ± parallel plicae, and a median carina which is nearly always double basally, or is replaced by two carinae diverging from the base. (Pronotal collar margined; petiole rectangular, reticulate) ..... *Pediobius*

8 (7) Propodeum: plicae absent, or traceable only posteriorly, or if (very rarely) complete, then weak and not parallel; median carina (if present) not double basally.

9 (10) Forewing with 3 (rarely 2) transverse fuscous bands. Antenna: flagellum strongly compressed, fusiform, with all funicle segments transverse ..... *Closterocerus*

10 (9) Forewing either without distinct dark markings, or with at most a single band or spot. If flagellum is strongly compressed, then the funicle segments are not all transverse.

11 (14) Forewing with two lines of hairs proceeding distad from the stigma. (Pronotal collar not margined.)

12 (13) Forewing with a faint curved median dark band. Antenna (fig. 19): scape and flagellum compressed as in *Closterocerus*, but funicle segments not transverse..... *Desmatocharis*, gen.n.

13 (12) Forewing immaculate. Scape and flagellum not compressed..... ..... *Metasecodes*

14 (11) Forewing without, or with only 1, line of hairs proceeding from stigma.

15 (18) Pronotal collar margined, often strongly so.

16 (17) Forewing: postmarginal and stigmal veins both very short, nearly equal in length. Frontal fork absent or weakly indicated. Propodeum: callus with 2 rows of hairs; median carina complete, straight, set in a groove ..... *Entedon*

17 (16) Forewing: postmarginal vein much longer than stigmal, which is not very short. Frontal fork distinct. Propodeum: callus with 1 row of hairs; median carina, when present, not set in a groove, often incomplete or irregular ..... *Epilampsis*

18 (15) Pronotum without a margined collar.

19 (26) Antennae with 2 funicle segments and a 3-segmented clava.

20 (21) Pedicellus as long as, clava obviously broader than, the funicle. Male: scape strongly swollen. Hindwing: fringe equal to or greater than the breadth of the wing. Thorax strongly flattened, often ± sunken after death; head, mesoscutum and scutellum usually shiny and relatively smooth..... *Ceranisus*

21 (20) Either pedicellus shorter, and clava not distinctly broader, than the funicle; or the hindwing has much shorter fringe. Male: scape not strongly swollen. Thorax more convex, not sunken; head, mesoscutum and scutellum relatively strongly sculptured.

22 (23) Forewing with a line of hairs proceeding distad from the stigma, the space between it and front margin of wing ± bare; usually a fuscous streak from the stigma ..... *Achrysocharis*

23 (22) Forewing without line of hairs, and without a bare space, in this position.

24 (25) Forewing obliquely subtruncate at apex, about twice as long as broad. Anelli 2 or 1, minute, discoid..... *Achrysocharella*

25 (24) Forewing rounded at apex, more than twice as long as broad. Anelli 3, the third sometimes large (but closely applied to first funicle segment) ..... *Neochrysocharis*

26 (19) Antennae: either 3 funicle segments and a 2-segmented clava; or flagellum with 5 segments which are not differentiated into funicle and clava.

27 (28) Forewing: postmarginal vein twice as long as the stigmal or more (only 1·5 times in *idyia*); petiolar emargination of propodeum narrow, semi-circular or trapeziform, embracing the petiole (see figs. 15 and 16); inner orbits of eyes converging ventrad and ± emarginate medially; genae very short; anterior margin of clypeus subtruncate (see fig. 2); third anellus larger and well visible ..... *Chrysocharis*

28 (27) Forewing: either postmarginal vein is not longer than stigmal or, if longer (some *Omphale*), then propodeum (fig. 17) has the petiolar emargination broad, triangular, and not embracing the petiole; the inner orbits are parallel and entire; the genae are longer; anterior margin of clypeus curved; and the (2) anelli are minute and discoid.

29 (30) Eyes with very dense rigid pubescence. Female: frontal fork T-shaped (fig. 18). Head and thorax with relatively strong reticulate sculpture ..... *Enaysma*

30 (29) Eyes with sparser less regular pubescence. Frontal fork Y-shaped (fig. 2). Head and thorax with more delicate (almost alutaceous) sculpture.

31 (32) Forewing: stigmal vein very short, stigma subsessile; postmarginal vein rudimentary. Antennal pedicellus blackish..... *Asecodes*

32 (31) Stigmal vein longer, stigma petiolate; postmarginal vein developed or, if rudimentary, then antennal pedicellus is white or yellowish.

33 (34) Forewing (fig. 26): longest fringes almost or quite equal to half the breadth of the wing; postmarginal vein absent; radial cell bare; a faint brownish transverse band from middle of marginal vein.. ..... *Eugerium*, gen.n.

34 (33) Forewing: longest fringes much less than half breadth of wing; postmarginal vein developed (except sometimes in *Ionympha carne*, in which radial cell is not bare and wing is immaculate).

35 (36) Propodeum (fig. 17): petiolar emargination broad, triangular. Eyes: facets of uniform size; inner orbits parallel. (Female gaster ovate to lanceolate, at least as long as thorax but often much longer).. ..... *Omphale*

36 (35) Propodeum (fig. 22): petiolar emargination narrow, semi-circular. Eyes: ventral facets larger than dorsal ones; inner orbits converging ventrad (female gaster short).

37 (38) Body violet-black. Forewing immaculate; radial cell not bare. Female gaster subcircular; ovipositor concealed by last sternite.. .....*Ionympha*, gen.n.

38 (37) Body green. Forewing usually with a fuscous streak from stigma; radial cell ± bare and delimited below by a line of hairs. Female gaster ovate; ovipositor not covered by last sternite..... ..... cf. *Achrysocharis*

Genus *Entedon* Dalman, 1820

Erdös (1944) revised the European species; also (1951) published a revised key to the species; and (1954) gave addenda. These papers (in Latin) are most useful, but they do not include all the British species.

In his Key of 1951, Erdös includes (from information supplied by Ferrière) the following Walker species: *pharnus*, *euphorion*, and *methion*. Amongst the syntypes of these species respectively, those specimens best agreeing with Walker's descriptions (1839) fit Erdös' interpretation.

Some other Walker species, which I have been able to recognize from his types, appear to be different from all those described by Erdös. They were all described by Walker in his Monographia (1839) and are:

Entedon abdera Wlk. (male only known): near the male of *nigritarsis* Erdös, 1944, but has longer funicle segments (the first about 2·5 times, second and third about 1·5 times, as long as broad, fourth slightly longer than broad).

E. sparetus Wlk.: a good species (subgenus *Dolichentedon* Erdös). I have seen specimens reared from *Gymnetron pascuorum* Gyll. on *Plantago lanceolata* L.

E. hercyna Wlk.: *E. elongatus* Thomson, 1878, is the same as *hercyna*. *E. elongatus* Thomson is a secondary homonym of [*Eulophus*] *elongatus* Förster, 1841, the latter having been transferred to *Entedon* by Ratzeburg in 1848. Erdös (1954) renamed the Thomsonian species *aselli*; but this was unnecessary, as the name *hercyna* Walker is available.

E. ergias Wlk.: I consider this is a good species. It is very close to *squamosus* Thomson (the types of which I have seen) but not in my opinion identical. I have English material reared from *Magdalis armigera* Geoffr. from elm logs.

E. zanara Wlk.: possibly a good species, but as Walker's syntypes are males, I cannot be sure until the female is associated by rearing.

E. diotimus Wlk.: this name should be used for *E. cyanellus* sensu Erdös et auctt. (nec Dalman, 1820). The true *cyanellus* Dalman (of which I have examined the syntypes) belongs to a different species-group.

Genus *Pediobius* Walker, 1846 (=*Pleurotropis* Förster, 1856)

Key to Species

1 (2) Hind tibia: spur slightly longer than first tarsal segment and slightly curved ..... *pyrgo* (Walker)

2 (1) Hind tibia: spur shorter than first tarsal segment, straight.

3 (4) Lateral angles of pronotum very prominent. Mesoscutum transversely striate anteriorly, longitudinally so posteriorly; scutellum longitudinally striate. Forewing: speculum open below..... ..... *saulius* (Walker)

4 (3) Lateral angles of pronotum not so prominent. Either the forewing speculum is closed below, or (*lysis* and *clita*) mesoscutum and scutellum are mainly reticulate.

5 (6) Scutellum with 2 longitudinal impressed lines, ± smooth between these and longitudinally striate outside them.... *alcoeus* (Walker)

6 (5) Scutellum without impressed lines, not so sculptured.

7 (26) Forewing: speculum closed below.

8 (9) Forewing: postmarginal vein rudimentary; stigmal very short, subsessile. Body mainly bronze- or violet-black. Female: basal tergite occupies most of gaster; flagellum slender..... *epeus* (Walker)

9 (8) Forewing: postmarginal vein at least as long as stigmal, which is usually not subsessile. Female: basal tergite occupying half the gaster or less or, if more (*brachycerus*) then body is mainly green to blue or golden and antennal flagellum is very stout.

10 (11) Malar space equal to half the transverse diameter of an eye. Flagellum stouter (in female very much stouter) than the pedicellus, with second and third (in female all) funicle segments transverse..... *brachycerus* (Thomson)

11 (10) Malar space much less than half the transverse diameter of an eye, often very short.

12 (13) Male: flagellum with 3 funicle segments and a 2-segmented clava. Female: funicle (even proximally) about twice as thick as pedicellus, third segment strongly transverse; clava subglobose, its second segment with a large patch of micropilosity beneath..... .....*argon* (Walker)

13 (12) Male: flagellum with 5 segments all well separated from each other. Female: funicle much less stout, its third segment not or only slightly transverse; clava of different shape, without conspicuous micropilosity.

14 (15) Mesoscutum: notaulices complete, deep. Mesoscutum tending to be transversely striate anteriorly ..... *termerus* (Walker)

15 (14) Mesoscutum reticulate; notaulices shallow, medially indistinct or interrupted. [The following species are very difficult to separate.]

16 (23) Female: sculptured part of petiole slightly to obviously transverse; gaster 1·8-2·6 times as long as broad, usually longer than thorax, with basal tergite one-quarter to almost one-third of the gaster; scutellum usually longer than broad; first funicle segment nearly always longer than pedicellus, and often as long as or longer than the clava. Male: gaster ventrally with epipleura forming a narrow inflexed ridge on each side.

17 (18) Female: antennal funicle subfiliform, its third segment 1·5-1·9 times as long as broad; clava hardly broader than funicle, its first segment usually longer than broad ..... *planiventris* (Thomson)

18 (17) Female: funicle ± broadening distally, its third segment at most 1·5 times as long as broad (but often quadrate or slightly transverse); clava broader than funicle, its first segment subquadrate to transverse.

19 (20) Propodeum: carina (before its point of bifurcation) usually single. Female: frons and vertex mainly bronzy- or violet-black, dull (gaster about as long as thorax)..... ..... *nigritarsis* (Thomson) (=*benefica* Gahan)

20 (19) Propodeum: carina double throughout. Female: head mainly green to blue, frons and vertex more shiny.

21 (22) Female: gaster 2·3-2·6 times as long as broad, nearly always slightly longer than head plus thorax ..... *eubius* (Walker)

22 (21) Female: gaster 1·8-2·1 times as long as broad, at least slightly shorter than head plus thorax ..... *alaspharus* (Walker)

23 (16) Female: sculptured part of petiole quadrate to slightly elongate; gaster 1·6-1·9 times as long as broad, about as long as thorax, with basal tergite occupying one-third to half of gaster; scutellum hardly longer than broad; first funicle segment often shorter than pedicellus, if longer, then shorter than the clava. Male: gaster ventrally with epipleura broad, not inflexed.

24 (25) Female: funicle more slender, its first segment hardly stouter than the pedicellus; frons and vertex mainly green. Male: funicle segments at least twice as long as broad.....*epigonus* (Walker)

25 (24) Female: funicle stouter, its first segment obviously stouter than the pedicellus; frons and vertex often ± violet-black. Male: funicle segments subquadrate to about 1·7 times as long as broad..... .....*acantha* (Walker)

26 (7) Forewing: speculum open below. (Female flagellum extremely short, gaster nearly circular.)

27 (28) Malar space equal to maximum breadth of flagellum in female, longer in male. Shortest distance between eyes about three-quarters of their length in female, greater in male. Tarsi usually dark. Head and thorax often mainly violet.....*lysis* (Walker)

28 (27) Malar space almost nil in both sexes. Shortest distance between eyes about half their length in female, about two-thirds in male. Tarsi mainly white. Head and thorax mainly green to blue..... ..... *clita* (Walker)

All the above Walker species were described (1839) in the genus *Entedon*. Most of the species are more or less common; *brachycerus*, *argon* and *termerus* less so; *pyrgo* and *epeus* appear to be rare. *P. brachycerus* (Oxfordshire) and *P. planiventris* (Berkshire) are new to Britain.

Genus *Mestocharis* Förster, 1878

One species, *arisba* (Walker) (=*Entedon arisba* Walker, 1839), which is rather uncommon (especially the male.)

Genus *Derostenus* Westwood, 1833

Key to Species

1 (2) Male: antennal scape stout, of relatively uniform breadth throughout; third anellus almost as large as first funicle segment and with sensillae; funicle stouter, more hairy, third segment (and often second) slightly transverse ..... *gemmeus* Westwood

2 (1) Male: scape slender proximally but broader distally; third anellus much smaller than first funicle segment and without true sensillae; funicle more slender, less hairy, all its segments quadrate (fig. 1) .....*amyclas* (Walker)

Females are hard to separate: there are differences in the flagellum corresponding to those in the males, but less obvious, while the scape differs slightly in shape in the two species. Both are relatively common.

Genus *Epilampsis* Delucchi, 1954

Delucchi (1954a) has given a key to species in which some excellent new characters are used. I have found only one defect, i.e. his use of leg-colour; this is so variable in some British species that I cannot rely upon it.

Key to Species

1 (2) Female: propodeal callus with a row of 7 or more hairs; forewing almost always with a discal fuscous cloud. Male: antennal scape, pedicellus, and legs including all coxae bright yellow..... ..... *gemma* (Walker)

2 (1) Female: propodeal callus with 2-4 hairs; forewing immaculate. Male: pedicellus, and coxae, mainly, dark.

3 (4) Forewing: lower surface of costal cell with a complete row of hairs extending from base to apex ..... *nigricrus* (Thomson)

4 (3) Forewing: lower surface of costal cell with at most a few hairs in the basal half.

5 (26) Petiole of gaster not longer than broad; in most species shorter than the propodeum and small, conical and smooth or nearly so; in two species it is almost as long as the propodeum and reticulate, but in these cases it is spatulate. Hind coxa bare dorsally. Occiput not margined (or slightly so medially).

6 (7) Propodeum strongly reticulate, with a strong T-shaped median carina. Petiole with a broadly expanded, reticulate posterior plate (fig. 12). Malar space extremely short, almost nil....*assis* (Walker)

7 (6) Petiole either inconspicuous, much shorter than the propodeum, conical and not expanded posteriorly into such a plate, relatively smooth; or, if at all like that of *assis* [*boops*] then the carina is less distinct and more irregular, and the malar space about equal to the breadth of the antennal scape.

8 (11) Female: gaster lanceolate, 2·5-3·5 times as long as broad, at least as long as (in *laomedon* usually, in *elongata* sometimes, longer than) head plus thorax. (Pronotal collar extremely narrow medially.)

9 (10) Malar space very short. Vertex, and disc of thorax, usually ± fiery. Legs (except coxae) white ..... *laomedon* (Walker)

10 (9) Malar space longer (about equal to breadth of scape). Vertex golden-green, thorax green to blue. Femora sometimes ± darkened proximally.....*elongata* (Thomson)

11 (8) Female: gaster long-ovate to circular, at most twice as long as broad and usually less, shorter than head plus thorax (as long as head plus thorax in some *nephereus*).

12 (13) Pronotal collar indistinct, margined only medially (much resembles *elongata*, but has gaster only as long as thorax).....sp.A.

13 (12) Pronotal collar distinct, margined throughout.

14 (15) Frons between the fork and median ocellus shiny, with delicate alutaceous sculpture (often ± smooth), below the fork more strongly reticulate. Mesoscutum greenish, scutellum violet-bronze. Male: disc of forewing often infumate.....sp.B.

15 (14) Frons between the fork and median ocellus duller, with reticulation quite or almost as strong as that below the fork. Mesoscutum and scutellum not of these contrasting colours (except sometimes in *laricinellae*). Male: forewing hyaline.

16 (17) Scutellum (fig. 13) as broad as long, nearly flat, very finely reticulate (except in very small specimens). Propodeum weakly sculptured (even medially), without a median carina or with at most a small tubercle basally. Forewing: subcubital line of hairs usually widely broken medially. Antenna: first funicle segment shorter than pedicellus.....*nephereus* (Walker)

17 (16) Scutellum either longer than broad, or else more convex and coarsely reticulate. Propodeum more strongly sculptured medially than laterally, usually with median carina ± indicated (often ± anchor-shaped and strong). Forewing: subcubital line of hairs usually entire. Antenna: first funicle segment often as long as or longer than pedicellus.

18 (19) Petiole broadly expanded and reticulate posteriorly (almost as in *assis*). Pronotal collar broad, its median length one-fifth to one-seventh the length of the mesoscutum.....*boops* (Thomson)

19 (18) Petiole conical, small, smooth or with at most a narrow rougher crest posteriorly. Pronotal collar narrower (sometimes very narrow medially).

20 (21) Forewing subtruncate at apex. Vertex dull, densely reticulate like the frons. (Blue-green; scape and legs except coxae, white; antenna short, first funicle segment shorter than pedicellus)..... ..... *nautias* (Walker)

21 (20) Forewing more rounded at apex. Vertex usually relatively shiny laterad of the posterior ocelli; if duller, then first funicle segment not shorter than pedicellus.

22 (23) Scutellum (fig. 14) as broad as long, coarsely reticulate. Body squat, thorax about 1·5 times as long as broad. Legs (except coxae, and hind femur sometimes ±) whitish.....*pentheus* (Walker)

23 (22) Scutellum distinctly longer than broad, less coarsely reticulate. Body relatively more elongate. Legs often darker.

24 (25) Antenna: first funicle segment equal to or shorter than the pedicellus, third not longer than first segment of clava. Legs yellowish; femora mainly dark, remainder of legs often ± infuscate. Head and thorax more shiny and less strongly sculptured..... ..... *laricinellae* (Ratzeburg)

25 (24) Antenna: first funicle segment at least slightly longer than the pedicellus, third slightly longer than first segment of clava. Legs (except coxae) whitish; or at most the femora and fore tibia ± darkened. Head and thorax duller and more strongly sculptured..... .....*novellus* (Walker)

26 (5) Petiole of gaster obviously longer than broad, as long as or longer than the propodeum, reticulate, nearly parallel-sided or gradually expanding posteriorly. Hind coxa with some hairs dorsally. Occiput margined.

27 (28) Frons weakly sculptured, often mainly smooth and shiny. Sharp margin of occiput continued well on to the temples. Petiole (fig. 15) tending to be parallel-sided in posterior two-thirds. Male: gaster with a pale spot....*prodice* (Walker) (=*latipennis* Thoms.)

28 (27) Frons strongly, densely reticulate. Margin of occiput hardly reaching eyes, temples terete. Petiole ± broadening posteriorly (fig. 16). Male: gaster immaculate.

29 (30) Propodeum: a trapeziform area, marked off by a transverse keel, just above petiolar insertion (as in fig. 15). Hind coxa dorsally with about 7-10 hairs.....*pilicoxa* (Thomson)

30 (29) Propodeum (fig. 16) semi-circularly emarginate above the petiole, without such an area. Hind coxa dorsally with at most 4 hairs.. ..... *larina* (Walker) (=*aurifrons* Thoms.)

The species are not uncommon (except *nigricrus*, *laomedon*, *elongata*, *nautias* and *pilicoxa*). The Walker species were described in *Entedon*, all (except *nautias*, *Ann. Mag. nat. Hist.*, 1846) in his 1839 *Monographia Chalciditum*. *E. nigricrus*, *elongata*, *boops* and *pilicoxa* are new to Britain.

Genus *Chrysocharis* Förster, 1856

Key to Species

1 (4) Forewing: lower surface of costal cell with a complete row of hairs extending from base to apex. Petiole very long; flagellum with 5 well-separated segments in both sexes (subg. *Trichocharis* Delucchi).

2 (3) Metascutellum 2-2·5 times as broad as long, at least one-third as long as the propodeum.....*chilo* (Walker) (=*petiolatus* Thoms.)

3 (2) Metascutellum 5-6 times as broad as long and about one-quarter as long as the propodeum ..... *pubens* Delucchi

4 (1) Forewing: lower surface of costal cell with row of hairs confined to basal half.

5 (8) Petiole about twice as long as broad, about as long as propodeum plus metascutellum, reticulate and ± parallel-sided, with 1 or 2 hairs laterally. Antennae: flagellum of female with 3 funicle segments and a 2-segmented clava; of male with 5 well-separated segments (*Chrysocharis* s.str.).

6 (7) Hind coxae wholly metallic, or whitish at apex only..... .....*melaenis* (Walker) (=*punctiscapus* Thoms.)

7 (6) Distal half, at least, of hind coxa white.....*albula* Delucchi

8 (5) Petiole not longer than propodeum and often shorter; often conical and nearly smooth, if strongly reticulate then either not or hardly longer than broad, or else piriform.

9 (28) Forewing: postmarginal vein about twice as long as the stigmal, or more.

10 (23) Flagellum with 3 funicle segments and a 2-segmented clava in females, and in the known males (those of *liriomyzae* and *phryne* unknown, but may be expected to have a reticulate petiole).

11 (18) Petiole mainly strongly reticulate. Legs (except coxae) pale, or very rarely femora faintly brownish proximally.

12 (13) Scutellum purplish, rest of thorax greenish. (Petiole transverse, roughly reticulate).....*phryne* (Walker) (=*scutellaris* Thoms.)

13 (12) Scutellum coloured like the rest of the thorax (green to blue or golden).

14 (17) Petiole composed of a smooth anterior neck, and a raised expanded ± rectangular posterior portion which is reticulate and quadrate to transverse. Median part of propodeum not evenly punctulate.

15 (16) Occiput slightly margined in the middle only. Propodeum medially with some strong wrinkles which tend to form an anchor-shaped carina basally ..... *crassiscapus* (Thomson)

16 (15) Occiput margined throughout. Propodeum alutaceous, shiny, without strong wrinkles (but a fine median carina is often indicated) ..... *polyzo* (Walker)

17 (14) Petiole slightly longer than broad, piriform, mainly reticulate, the reticulate portion narrowing gradually into the neck and not raised above the latter. Median part of propodeum densely, ± evenly punctulate ..... *liriomyzae* Delucchi

18 (11) Petiole small, conical, mainly or wholly smooth. Femora usually mainly dark.

19 (20) Mesoscutum and scutellum coarsely reticulate, less shiny. Hind coxa externally strongly reticulate and dull. Propodeum medially uneven, ± reticulate and wrinkled. First funicle segment longer than the pedicellus.....*pubicornis* (Zetterstedt) (=*syma* Walker)

20 (19) Mesoscutum (especially the lateral lobes) and scutellum, finely reticulate, more shiny. Hind coxa externally weakly reticulate, shiny. Either the propodeum medially is evenly convex and shiny, or else the funicle segments are shorter than the pedicellus.

21 (22) Scutellum purplish, mesoscutum green to blue-green. Propodeum convex, shiny, without median carina. Funicle segments longer, the first longer than the pedicellus.....sp.A.

22 (21) Mesoscutum and scutellum green to blue-green, or both ± bronzy-tinged. Propodeum duller, more strongly sculptured medially; carina ± indicated. Funicle segments shorter than the pedicellus .....cf. *Epilampsis* sp.A.

23 (10) Flagellum with 5 well-separated segments in both sexes. Petiole smooth or almost so.

24 (25) Femora mainly dark (sometimes also tibiae). Body slender, dull (including the reticulate propodeum), dark greenish to bronze with vertex and scutellum dull purplish. Petiole small. Propodeum: callus with 2 hairs. Gaster of female ovate, pointed..... ..... *clinius* (Walker)

25 (24) Legs (except coxae) whitish. Body stouter, not dull, bright green; propodeum shiny, callus with 4-14 hairs. Petiole as long as propodeum. Female gaster subcircular.

26 (27) Propodeum: callus with 10-14 hairs. Forewing: postmarginal vein about 2·5 times as long as stigmal.....*amyite* (Walker)

27 (26) Propodeum: callus with 4-7 hairs. Forewing: postmarginal vein about twice as long as stigmal .... *naenia* (Walker) (=*punctifrons* Thoms.)

28 (9) Forewing: postmarginal vein at most about 1·5 times as long as the stigmal. Flagellum stout, with 3 funicle segments and a 2-segmented clava in female; with 5 well-separated segments in male. Petiole small, conical, smooth ....*idyia* (Walker) (=*heterotoma* Thoms.)

Most of the species are relatively common; *pubens*, *albula*, *phryne*, *punctiscapus*, *liriomyzae* and *idyia* seem more local. All the Walker species were originally described in his "Monographia" (1839), in *Entedon*. *C. pubens*, *albula* and *punctiscapus* are new to our list.

Genus *Enaysma* Delucchi, 1954

Key to Species

1 (6) Petiole conical, gradually broadening posteriorly. Flagellum of male black, with 5 well-separated segments which are nearly twice as long as broad and obviously longer than the pedicellus (subgen. *Pentenaysma* **nov.**; type species, *Eulophus latreillii* Curtis, 1826).

2 (3) Male: flagellum stout, compressed, its segments (in profile) more rectangular, clothed with hairs which are shorter than the breadth of the segments; pedicellus brown. Female: pedicellus brown; hind coxa at most metallic basally.....*butus* (Walker)

3 (2) Male: flagellum slender, not compressed, its segments more oval, clothed with rather whorled hairs which are longer than the breadth of the segments; pedicellus white. Female: either pedicellus is pale, or hind coxa is mainly metallic.

4 (5) Forewing rounded at apex; hind coxa usually white, or metallic basally (rarely mainly so). Male: head in dorsal view about 2·2 times as broad as long. Female: pedicellus white or yellowish.. ..... *cilla* (Walker)

5 (4) Forewing ± obliquely truncate at apex (esp. in male); hind coxa mainly metallic. Male: head about 2·6 times as broad as long. Female: pedicellus brown.....*latreillei* (Curtis)

6 (1) Petiole with a broadly expanded, ± rectangular portion posteriorly. Male: flagellum whitish, with 3 funicle segments and a 2-segmented clava; the funicle segments slightly longer than broad and not longer than the pedicellus (*Enaysma* s.str.).

7 (8) Female: frons above the fork more weakly reticulate, relatively shiny. Scutellum and axillae purple in female, usually so in male. Forewing usually with a faint discal cloud.....*atys* (Walker)

8 (7) Female: frons above the fork densely reticulate, dull. Both sexes: scutellum and axillae green; forewing immaculate..... .....*niveipes* (Thomson)

The species are not uncommon (*butus* less so). Those of Walker were described (1839, *Mon. Chalciditum*, 1) in *Entedon*. *E. latreillei* is redescribed from specimens compared with the types of *Eulophus latreillii* Curtis, 1826, now in Melbourne, Australia. *Enaysma septentrionalis* Delucchi, 1957, is the same as *butus* (Walker); *E. splendens* Delucchi, 1954, is probably the same as *latreillei* (Curtis). *E. niveipes* is new to our list.

Genus *Neochrysocharis* Kurdjumov, 1912

Key to Species

1 (6) Antennae: flagellum (female) feebly subclavate or (male) almost filiform; funicle segments (or rarely only the first) at least slightly longer than broad; third anellus large, hence no marked constriction of the flagellum at this point; pedicellus almost always shorter than the combined length of the two funicle segments.

2 (3) Pedicellus of male twice, of female about 2·5 times, as long as broad, slightly longer than anelli plus first funicle segment. Forewing: postmarginal vein very short. Tibiae testaceous, often ± infuscate. Body dull greenish; scutellum sometimes bronzy..*aratus* (Walker)

3 (2) Pedicellus of male much less than twice, of female hardly twice, as long as broad, equal in length to anelli plus first funicle segment. Postmarginal vein usually longer, sometimes as long as the stigmal. Tibiae whitish.

4 (5) Scutellum and axillae rich purple; disc of forewing± infumate.... .....*dimas* (Walker)

5 (4) Scutellum and axillae coloured like the rest of the thorax (green to blue); forewing hyaline.....sp.

6 (1) Antennae: flagellum (female) obviously, or (male) slightly, clavate; funicle segments quadrate, or the second slightly transverse; all three anelli minute, hence there is a neck-like constriction between the pedicellus and the first funicle segment; pedicellus as long as the two funicle segments together (fig. 20).

7 (8) Tibiae (and scape of male mainly) whitish. More squat species; gaster of female about as long as thorax. Antennal clava pointed, with a terminal spine.....*cuprifrons* Erdös

8 (7) Tibiae mainly dark. More elongate species; gaster of female as long as head plus thorax. Antennal clava of female (fig. 20) truncate, without a terminal spine.....*clinias* (Walker)

Rather uncommon (especially *clinias*).

N. clinias and *N. aratus* were described by Walker (1838, *Ann. Mag. nat. Hist.*, 1: 451, 453) in *Cirrospilus*; *N. dimas* (1839, *Mon. Chalciditum*, 1:24) in *Entedon*.

Genus *Closterocerus* Westwood, 1833

One British species, the handsome *trifasciatus* Westwood, which is rather uncommon.

Genus *Achrysocharella* Girault, 1913

One species, *formosa* (Westwood) (=*Closterocerus formosus* Westwood, 1833) is on our list, but there may be others yet to be found.

Genus *Achrysocharis* Girault, 1913

One species, *A. lanassa* (Walker), **comb.n.**; originally described (1839, *Mon. Chalciditum*) in *Entedon*. It differs from *A. bifasciatus* Girault, the type species (which I have seen) in its wholly green body, dusky flagellum, dark-marked femora and tibiae, and in having a fuscous streak from the stigmal vein; the thorax is longer, and the mid lobe of the mesoscutum has 4 or 6 (instead of 2) bristles.

Genus *Desmatocharis*, gen.n.

Eyes: ventral facets somewhat larger than dorsal ones; inner orbits sinuate but not converging ventrad. Frontal fork Y-shaped; arms of the fork diverging from a point which is slightly nearer to median ocellus than to antennal toruli. Genae rather short. Anterior margin of clypeus slightly curved. Antennae (fig. 19): scape strongly compressed, laminar in front; pedicellus compressed; apparently 1 minute anellus; flagellum strongly compressed, tapering, with 5 well-separated segments.

Thorax reticulate; posterior third of scutellum shiny. Pronotum without a collar. Notaulices complete but shallow. Propodeum long; median carina ± indicated, plicae present only posteriorly. Wings as in *Metasecodes* Erdös. Gaster shorter than thorax, of female ovate, depressed. Petiole with a small neck, and a raised and reticulate, subquadrate posterior portion.

Forewing with a curved fuscous median band from the marginal vein to hind margin of wing.

Type species: *Eulophus turcicus* Nees, 1834 [*sensu* Walker, 1839].

Resembles *Closterocerus* Westwood, but the segments of the flagellum are not transverse, the pronotum has no collar, the scutellum is shiny posteriorly, the propodeum is longer and has a carina, the petiole is larger, and the forewing resembles that of *Metasecodes*.

Rare. As Nees' types are lost, I base my interpretation of the type species upon Walker's redescription (1839, *Mon. Chalciditum*, 1:23) and the material mentioned by him.

Genus *Metasecodes* Erdös, 1955

One British species, *M. erxias* (Walker), **comb.n.**; originally described (1848, *List Hym. Ins. Brit. Mus.*, part 2: 227) in *Entedon*. I have taken it (but rarely) upon oak.

Genus *Asecodes* Förster, 1856

Key to Species

1 (4) Malar space hardly half the transverse diameter of an eye. Forewing relatively densely haired. Body mainly bronze- or greenish-black. (*Asecodes* s.str.)

2 (3) Scutellum distinctly longer than broad (in male up to 1·5 times as long as broad). Forewing 2·7-3 times as long as broad..... ..... *coronis* (Walker)

3 (2) Scutellum not or hardly longer than broad in both sexes. Forewing of female about 2·5, of male 2·3-2·7, times as long as broad..... ..... *lagus* (Walker)

4 (1) Malar space at least three-quarters the transverse diameter of an eye. Forewing relatively sparsely haired. Body mainly blue-black (subgen. *Ganahlia* Dalla Torre).....*mento* (Walker)

The species are rather local. *A. coronis* and *A. lagus* were originally described (1838, *Ann. Mag. nat. Hist.*, 1: 450-4) in *Cirrospilus*; *mento* (1839, *Mon. Chalciditum*, 1) in *Entedon*.

Genus *Ionympha*, gen.n.

(Figs. 21-24)

Eyes: ventral facets larger than dorsal facets; inner orbits sinuate. Frontal fork Y-shaped, the point of divergence of the arms about midway between toruli and median ocellus. Genae short, mouth-opening large. Anterior margin of clypeus curved. Mandibles (fig. 23). Antennae (fig. 24) inserted at level of ventral edge of eyes: scape slender; two discoid anelli; flagellum filiform, with 5 well-separated segments in male, the last two united in female.

Pronotum without collar. Notaulices shallow. Metascutellum and propodeum as in *Asecodes*, propodeum with both petiolar emargination (which is semi-circular) and supracoxal flange narrow. Forewing: as in *Asecodes*, but stigmal vein long, stigma petiolate; postmarginal vein in *ochus* as long as stigmal, in *carne* indistinct or rudimentary. Gaster shorter than thorax, in female nearly circular; ovipositor concealed. Petiole small, subconical, nearly smooth.

Minute species, 0·8-1·2 mm.; body violet-black.

Type species: *Entedon ochus* Walker, 1839.

Resembles *Asecodes* Förster, but eyes larger, with larger ventral facets, inner orbits sinuate; genae shorter; stigmal vein of forewing long and stigma petiolate.

Key to Species

1 (2) Pedicellus dark. Mesoscutum strongly reticulate, dull. Forewing (fig. 21): postmarginal vein as long as stigmal.....*ochus* (Walker)

2 (1) Pedicellus mainly white. Mesoscutum delicately reticulate, shiny. Postmarginal vein indistinct or rudimentary.....*carne* (Walker)

The species are uncommon. Both were described by Walker (1839) in *Entedon.*

Genus *Holcopelte* Förster, 1856

Key to Species

1 (2) Legs (including coxae) testaceous; femora sometimes ± dusky. Propodeum without costula.....*obscura* Förster

2 (1) Legs mainly dark. Propodeum with a costula..*sulciscuta* (Thomson)

Rare (Berkshire). I have only once taken *sulciscuta*. Both species new to Britain.

Genus *Omphale* Haliday. 1833

Key to Species

1 (12) Forewing (fig. 8): the row of underside admarginal hairs (pointing towards disc of wing) all, or nearly all, arising from the marginal vein; radial cell mainly bare and ± delimited below by a line of hairs (*Omphale* s.str.).

2 (7) Female: last tergite of gaster elongate, longitudinally striate. Mid leg: tibial spur not or only just half as long as the first tarsal segment. Hind leg: first tarsal segment at least slightly longer than second.

3 (6) Female: last tergite of gaster 2·7-3 times as long as its basal breadth; gaster 2-2·5 times as long as thorax.

4 (5) Female: body strongly metallic, deep green, with at most a patch on mesopleuron below wing testaceous, and venter of gaster sometimes brownish along the median line.....*salicis* (Haliday)

5 (4) Female: parts of propleuron and prosternum, prepectus, and often sides of scutellum and mesosternum, brownish-testaceous. Gaster with only a weak metallic gloss, ± brownish-testaceous (especially ventrally) ..... *theana* (Walker)

6 (3) Female: last tergite of gaster 1·7-2·3 times as long as broad. (Colour as in *theana*) ..... *radialis* (Thomson)

7 (2) Female: last tergite of gaster not longitudinally striate, relatively short. Mid leg: tibial spur fully two-thirds as long as first tarsal segment. Hind leg: first tarsal segment barely as long as second.

8 (9) Occiput finely margined behind ocelli, the transition from vertex to occipital surface abrupt; frons above the fork, and vertex, smooth and polished (even X 100); head usually not collapsed..... ..... *rubigus* (Walker)

9 (8) Occiput not margined, but vertex rounded off into occiput; frons above the fork, and vertex, ± alutaceous or reticulate; head usually ± collapsed after death [this may produce a sharp fold on the vertex which must not be confused with the true margination of *rubigus*].

10 (11) Forewing: speculum open below, postmarginal veing twice as long as stigmal; stigma small. (Body slender, bronze to coppery, legs mainly testaceous)..... *clymene* (Walker)

11 (10) Forewing: speculum closed below; postmarginal vein at most slightly longer than stigmal; stigma large, oblong. (Body squat, dark bluish varied with green and violet; legs mainly dark).... *navius* (Walker)

12 (1) Forewing (fig. 9): the row of underside admarginal hairs irregular, some of the hairs arising from the wing-membrane; radial cell hairy and not delimited below. (*Smaragdites* Westwood.)

13 (14) Prosternum (sometimes also prepectus and pronotum ventrad) and legs including all coxae, clear lemon-yellow. Forewing: speculum closed; postmarginal vein about twice as long as stigmal..... ..... *admirabilis* (Westwood)

14 (13) Prosternum, prepectus and pronotum metallic. If legs are coloured as above, then forewing speculum is open below and postmarginal vein is shorter.

15 (16) Forewing: speculum open below. Face between eye and clypeus with sharp strigose-reticulate sculpture .... *versicolor* (Nees) Thomson

16 (15) Forewing: speculum closed. Face between eye and clypeus nearly smooth, or very weakly sculptured.

17 (22) Female: gaster 2·4-3·4 times as long as broad, distinctly longer than head plus thorax; last tergite as long as or slightly longer than broad.

18 (21) Head and thorax violet- or bronzy-black, with at most flecks on clypeus and face, and propodeum, slightly greenish.

19 (20) Legs bright testaceous; coxae usually pale or mainly so; usually only hind femur ± darkened, rarely all femora slightly so. Forewing usually yellowish; postmarginal vein usually about 1·5 times as long as stigmal ..... *aetius* (Walker)

20 (19) Legs dull testaceous with at least fore and mid coxae dark; all femora mainly dark; tibiae sometimes infuscate. Forewing not or hardly yellowish; postmarginal vein equal to stigmal, or rarely slightly longer..... *coilus* (Walker)

21 (18) At least face mainly, and frons below the fork, strongly green or brassy. Vertex, mesoscutum, and scutellum nearly always ± green or brassy, often strongly so; sometimes flecks of these colours upon mesosternum, mesopleuron, and other parts.... *acamas* (Walker)

22 (17) Female: gaster 1·8-2·25 times as long as broad, not or barely longer than head plus thorax; last tergite usually transverse, rarely as long as broad.

23 (24) Colour of body and legs as in *aetius*. Flagellum longer, more slender and less hairy; funicle segments longer, the third about 2·5 times as long as broad or more..... *metius* (Walker)

24 (23) Colour of body as in *acamas*; legs relatively dark, as in *coilus*. Flagellum short, stouter and more hairy; funicle segments shorter, the third at most twice as long as broad (usually less)..... ..... *epaphus* (Walker)

The species are fairly common (those of *Omphale* s.str. less so, while *rubigus*, *clymene* and *admirabilis* are rather rare). All the above Walker species were described (1839, *Mon. Chalciditum*, 1) in *Entedon*; two others, *phruron* Walker and *erginnus* Walker, also belong to *Omphale* (**comb.n.**), and are good species, but their types are males which I cannot yet associate with any females. *O. radialis* and *O. versicolor* are new to Britain (Berkshire).

Genus *Eugerium*, gen.n.

(Figs. 25, 26)

Eyes: facets of nearly uniform size; inner orbits not sinuate. Frontal fork, clypeus, mandibles, and insertion of antennae, as in *Ionympha*, but genae longer. Antennae (fig. 25): anelli absent; flagellum tapering, with 5 well-separated segments in both sexes.

Thorax as in *Ionympha*, but the petiolar emargination of the propodeum is broader and subtriangular. Forewing (fig. 26): postmarginal vein absent, stigmal long; fringes very long, fully as long as those of the hindwing. Gaster as in *Ionympha*, but in the female the ovipositor sheaths are visible ventrally (as in *Asecodes*).

Type species: *Cirrospilus isander* Walker, 1839.

Differs from *Ionympha* as indicated above; from *Asecodes* in its long stigmal vein; from *Omphale* in its rudimentary postmarginal vein and long wing-fringes; it also differs from the two latter genera in having no anelli, and in its more sparsely haired wings.

The single species, *isander* (Walker) is minute, with violet-black body, brownish antennae with scape and pedicellus yellowish, legs ± infuscate. I select as lectotype of *Cirrospilus isander* a male in the Haliday collection which I have marked with a small red ticket.

Genus *Ceranisus* Walker, 1840
(=*Thripoctenus* Crawford, 1911, syn.n.)

Key to Species

1 (2) Forewing: sector of cubital vein (marked by a line of hairs) beyond the basal vein nearly straight; postmarginal vein as long as or longer than stigmal. Gaster metallic; legs mainly dark; antenna ± dusky.....*pacuvius* (Walker)

2 (1) Forewing: sector of cubital vein beyond the basal vein sinuate upwards, leaving a broad bare space between it and hind margin of wing (see fig. 6); postmarginal vein shorter than stigmal. Gaster mainly fulvous; antennae and legs mainly pale yellow.....*menes* (Walker)

Both species appear uncommon, but being minute are easily overlooked. *C. menes* was originally described (1839, *Mon. Chalciditum*, 1: 18) in *Pteroptrix*.

Euderinae

Key to Genera

1 (2) Forewing immaculate, but its distal half with lines of hairs (some proceeding from the stigma); antennae dark.....*Euderus*

2 (1) Forewing without such lines of hairs, but with conspicuous fuscous spots; third and fourth funicle segments of female pale yellow.....*Astichus*

Genus *Astichus* Förster, 1856

One species, *arithmeticus* (Förster). Uncommon.

Genus *Euderus* Haliday, 1843

Key to Species (Females)

1 (2) Antenna: funicle segments 1 to 3 slightly to obviously longer than broad; gaster at least slightly longer than head plus thorax..... *amphis* (Walker)

2 (1) Antenna: funicle segments quadrate, or the fourth slightly transverse; gaster not longer than head plus thorax..*viridis* (Thomson)

E. amphis is not uncommon; *viridis* more local [new to Britain].

Tetrastichinae

A synopsis of the species will be published elsewhere.

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